SBIR Newsletter June 2002

- Feature Story--Safeguarding your Good Idea
- Competition Tips--from Purity Systems—How the patent process moved an innovative idea into commercialization
- Six Montana companies win USDA SBIR Phase I Awards
- US Department of Agriculture opens new topic areas in wildlife issues and also encourages grant applications to address bio-terrorism protection in rural areas

If you have questions or subjects you would like covered, please contact Linda Brander, SBIR Outreach Coordinator or call (406) 841-2749.

1.0 Patents: Safeguarding your Good Idea

Imagine working on your dream for years only to find out that someone else with a similar dream owns the concept. It happens more often than you might think. You can avoid this dead end by doing your research up-front, and then, if appropriate, protecting your invention with a patent.

"The biggest short-coming I've seen in SBIR proposals is that the applicants haven't thought through the novelty and patentability of their inventions," says Robert Hunter of Web Patent, Kamuela, Hawaii. Hunter a registered patent agent and SBIR proposal reviewer says that, "Patent research should be done before you start writing your proposal to avoid working on something for years that isn't going to be yours."

Where to Start

You should determine the patentability of your invention—whether it is a new technology, product or process—as soon as it is fully conceptualized. Ask yourself three questions:

1. Is the item useful?
2. Is it novel?
3. It is non-obvious; that is, would a person knowledgeable in its field of use find it surprising and beyond the state of the art?

To answer the last two questions requires a preliminary novelty search, which is a search of existing ideas, or what is called a "novelty search." You can do this yourself, using one of the patent search engines available (see the "Resources" section of this newsletter). A keyword search will take you to the classes and subclasses of patent categories related to your invention.

If you find your invention, or something very similar to it, you know it isn't novel, and any work you do on it is potentially a waste of time and money. If you don't find your

invention, you still cannot assume that it is novel. There are millions of patented ideas, technologies, products and processes, so you need to dig deeper to determine if someone holds the rights to "your" invention.

This stage of the process is a good place to turn over the search to someone else. "Inventors tend to be in denial and ignore anything that would call into question the novelty of their invention," Hunter says. "You need a third party who can be objective."

That person could be someone in your company, or you can hire patent practitioners or other experts to conduct the patent search. The best consultants are those who are intent on giving you bad news—if despite their best efforts, they cannot find anything similar to your invention, you will know it is novel, patentable and potentially profitable.

"It is also imperative to go beyond what's done in a novelty search, which just focuses on patents, and do a comprehensive nonpatented literature search as well," says Hunter. This search will reveal the information typically known by agency proposal reviewers, thereby saving you time in the long run. The novelty search will lead you to the literature sources applicable to your invention. Other suggestions for conducting this search can be found in Resources.

What to Do

Once you determine that your invention is patentable, you will need to decide what type of patent you need. The vast majority of projects receiving SBIR funding fall in the "utility" patent category, which protects the way a technology or product is made or the way a process works. Other patent types include "plant" patents, which protect asexually-propagated plants, and "design" patents, which protect the way an article looks.

As there are U.S., non-U.S. regional and non-U.S. national patents, you will need to decide what jurisdiction is applicable to the marketability of your invention. Each patent type has its own rules regarding timing of the application.

The SBIR/STTR program rules also specify when grantees must file for patent protection along with when they must disclose invention specifics and elect title to the invention. Failure to follow these regulations could result in loss of your invention to the funding agency. "As yet, this has never happened, but why risk it by not complying," Hunter says.

Once you file your patent application, the "prosecution" phase begins. This is the patent office's search-and-examination process to determine if your invention can in fact be patented. This can take two to three years to complete. In the meantime, your invention is protected as "patent-pending."

If you are not sure of the viability of your invention but still want to protect your intellectual property, you can file a provisional patent application. When the patent office receives your provisional patent application, it records it but does not start the "prosecution" process until it receives a regular patent application. If the regular

application is not filed within a year of the filing date of the provisional application, the patent protection no longer applies.

When to Do It

In general, federal rules stipulate that a U.S. patent must be filed within one year of the invention being commercialized in the U.S., used in public in the U.S. or publicized to the point of enabling its practice. There are exceptions for experimental public use or sale needed to test whether the technology, product or service truly works. These exceptions, however, don't apply to non-U.S. patents.

Inventors can inadvertently wait too long to apply for their patents. For example, an SBIR winner might write a Phase II proposal in which the company agrees to sell a prototype of the completed technology, product or service to the granting agency. Although it could be a year before it receives grant funding and another before the actual technology transfer, the date the proposal is submitted is considered the date of the commercial offer for sale. Not understanding that distinction could be devastating. An inventor is barred from obtaining a U.S. patent if an invention that is ready for patenting is offered for sale in the U.S. more than one year before a U.S. patent application is filed.

Not every innovation needs patent protection, but every inventor with an eye to commercialization needs to protect his or her ideas to the greatest extent possible. Often that protection will include at least one patent application. So do your research and take steps to protect yourself early on.

"At the end of your SBIR process, you're going to have produced a prototype of your intellectual property. You need to protect that intellectual property to make the process worthwhile," Hunter concludes.

For more information about patents, check Robert Hunter's web site at www.webpatent.com. Dr. Hunter will be in Montana for an MDOC SBIR workshop on July 11. Contact the MDOC SBIR Outreach Program for more information about this and other workshops as well as for more information about SBIR/STTR regulations regarding patents.

2.0 Competition Tips: Patented Processes Help Purity Systems Move from Innovation to Commercialization

Purity Systems, Inc., (PSI) moved a step closer to commercialization of its copper recovery process recently when the Missoula-based company received Phase II funding from the National Science Foundation (NSF). Potential applications for the patented system include retrieving copper from mining wastewater for reuse and extracting it from iron.

The patent is one of two held by the University of Montana that are exclusively licensed to PSI. The company paid for the development of the patents as well as another one that

is currently pending. The Phase II grant is Purity Systems' third SBIR grant, and the company is in the process of preparing a fourth SBIR proposal based on new technology that could lead to a fourth patent.

Ed Rosenberg, chief consultant to PSI and the chairman of the UM chemistry department, is co-inventor of the copper recovery technology. Rosenberg offers the following tips about the patent process for companies seeking SBIR funding.

- Work with a patent attorney. "Even though I'm a scientist and I'm getting more involved in the commercialization of some of our inventions, I certainly wouldn't be able to write a patent application without the help of a patent attorney," Rosenberg says. Patent attorneys know how to get maximum coverage for your invention by breaking it into specific claims. For instance, Rosenberg's patent attorney broke his patent application into two claims—the process for making the material and the process for using the material—a distinction Rosenberg didn't initially make.

- Consider filing the patent application before writing your SBIR proposal. Filing a patent application, or even a provisional patent application, before you write your SBIR proposal gives you the freedom to be specific and therefore submit a stronger proposal. "We hadn't filed a patent on our process when we submitted our SBIR Phase I proposal to NSF, and therefore we were deliberately vague," Rosenberg explains. One of the reviewers strongly criticized that vagueness. "We received funding anyway, but it could have been a deal breaker," he says.

- Be prepared to be turned down. Both of the patents Rosenberg holds were initially turned down by the U.S. Patent Office. Rosenberg was able to reverse the decision on the first patent, which was received in the mid-1980s, with just a verbal rebuttal, convincing the patent examiner that the patented technology he was comparing Rosenberg's invention to was completely different.

In the second case, Rosenberg had to conduct research to prove the difference. "The patent office had come up with a patented material that we weren't aware of that had the same composition that our material had," he says. "We went back into the lab and compared the material ours and found that it didn't work nearly as well as ours did." The additional research convinced the patent office that Purity Systems' material was indeed made by a different process, resulted in different properties and was therefore patentable. Rosenberg then worked with the patent attorney in the patent application revision process.

3.0 Montana Companies Winning National Awards

Montana beats national average with Phase I SBIR wins at the U.S. Department of Agriculture (USDA). The national average of proposals submitted to proposals won is normally 20%--Montana achieved a 47% win rate. Thirteen Montana companies submitted proposals to the USDA.

The Six Phase I SBIR winners are:

Company: Bitterroot Restoration Inc.
445 Quast Lane
Corvallis, MT 59828
Voice: (406) 961-4991

Amount: $79,946/6 Months
Principal Investigator: Mr. Tim Meikle,
Target Agency: US Department of Agriculture
Topic: Alternative Growth Medium Product to Promote VAM Colonization

Company: Forest Biometrics
53 Trestle Creek Drive
St. Regis, MT 59866
Voice: (406) 649-0040

Amount: $69,200/6 Months
Principal Investigator: Dr. James D. Arney
Target Agency: US Department of Agriculture
Topic: Establishment of the Forest Biometrics Institute - Research Database

Company: MedIntel
313 N. California Street
Helena, MT 59601
Voice: (406) 449-4741

Amount: $80,000/6 Months
Principal Investigator: Timothy Lee Nagel
Target Agency: US Department of Agriculture
Topic: Predicting Pesticide Toxicity via QSAR and Ensembles

Company: Land EKG, Inc.
6085 Browning Lane
Bozeman, MT 59718
Voice: (406) 582-7480

Amount: $79,828/6 Months
Principal Investigator: Charles Orchard
Target Agency: US Department of Agriculture
Topic: Computerized Rangeland Level III Monitoring System

Company: New Horizon Technologies, Inc.
P.O. Box 500, 3040 Continental Drive
Butte, MT 59702
Voice: (406) 494-4577

Amount: $79,720/6 Months
Principal Investigator: Ms. Holly Born
Target Agency: US Department of Agriculture
Topic: Applying French Label Rouge Poultry System to the US "Pastured Poultry" Movement

Company: Montec Research
1901 South Franklin
Butte, MT 59701
Voice: (406) 723-2222

Amount: $80,000/6 Months
Principal Investigator: Mr. Steven McGrath
Target Agency: US Department of Agriculture
Topic: Innovative Enzymatic Reactor For Production of Alternative Fuels

Phase 0 Winners for May 2002

Congratulations to the winners of the May Phase 0 grants!

Company: Skylark Technology
Barry Chalmers & Gerald Myers
98 US Highway 2 E, Suite #7
Glasgow, MT 59230-2030
Voice: (406) 228-9303

Phase 0 Title: Bio-Inspired Document Recognition System
Target Agency: National Science Foundation
Principal Investigator: Barry Chalmers
E-mail: barryc@skylarkdvd.com

Company: Sustainable Systems LLC
Paul T. Miller
Montana Biodiesel
91 Campus Drive PMB 1005
Missoula, MT 59812
Voice: (406) 243-4269

Phase 0 Title: Development of Continuous Flow Process Techniques for the Conversion of Montana Grown Vegetable Oils to Alternate Renewable Fuels
Target Agency: United States Department of Agriculture
Principal Investigator: Paul T. Miller
E-mail: pmiller@selway.umt.edu

WE DO OUR BEST TO IDENTIFY EVERY AWARD WINNER, BUT WE MAY HAVE ACCIDENTALLY MISSED YOUR COMPANY. IF WE HAVE, PLEASE NOTIFY LINDA BRANDER (406) 841-2749 or lbrander@state.mt.us

4.0 Solicitations

Open Solicitations			
Program	**Release Dates**	**Accepts Proposals**	**Closing Dates**
ED SBIR Grants	15 May 2002	15 May 2002	10 Jul 2002
DoD SBIR - 2002.2	1 May 2002	1 Jul 2002	14 Aug 2002
ED SBIR Contracts	2 Apr 2002	2 Apr 2002	10 Jun 2002
NIH/NIMH SBIR Contracts RFP No. NIMH-02-SBIR-Phase I	28 Mar 2002	28 Mar 2002	28 May 2002
EPA SBIR	28 Mar 2002	28 Mar 2002	23 May 2002
NSF SBIR/STTR for AM & IT only	1 Mar 2002	1 Mar 2002	12 June 2002
NSF SBIR/STTR for BT & EL only	1 Mar 2002	10 Oct 2002	22 Jan 2003
HHS/NIH SBIR/STTR (Grants) Non-Aids Related Topics	15 Jan 2002	15 Jan 2002	1 Apr 2002 1 Aug 2002 1 Dec 2002
HHS/NIH SBIR/STTR (Grants) Aids Related Topics	15 Jan 2002	15 Jan 2002	1 Apr 2002 1 Aug 2002 1 Dec 2002
HHS/CDC SBIR (Grants)	15 Jan 2002	15 Jan 2002	1 Dec 2002
HHS/FDA SBIR (Grants)	15 Jan 2002	15 Jan 2002	1 Apr 2002 1 Aug 2002 1 Dec 2002

For a complete overview of all solicitations go to: http://www.zyn.com/sbir/scomp.htm

New Opportunities at the USDA

USDA To Add New SBIR Topic: The USDA SBIR program is adding a new topic area on wildlife issues. The program will focus on wildlife in terrestrial (including birds), freshwater and estuarine environments but not the marine environment. The aim is to develop new or improved technologies and environmentally sound approaches for improved management of wildlife that will reduce the adverse effects of wildlife on agriculture and people and enhance the sustainability of wildlife populations. Examples of appropriate research proposals could include:

- Wildlife Damage Management: Improve methods to mitigate the influence of wildlife on crops, livestock and aquaculture. Emphasis should be placed on the development of non-lethal approaches to address wildlife problems.
- Wildlife Population Enhancement: Develop methods and approaches to improve the management of wildlife populations. Emphasis should be on strategies that sustain wildlife populations or improve the survivability of endangered or threatened species.
- Wildlife Reproduction and Health: Improve methods for regulating wildlife populations to maintain them at desired levels. Research is also needed on vaccine development to control the spread of diseases within wildlife populations that could spread to agricultural livestock and humans as well as diseases that could transmit from domestic stock to wildlife.

- Habitat Management: Improve methods of habitat management to enhance the sustainability of wildlife populations and reduce the negative effects of wildlife on agriculture, human health safety, and personal property.

Bio-Terrorism and Homeland Security: In the wake of the September 11 terrorism attacks on New York and Washington, DC, the USDA SBIR program is encouraging applications that deal with bio-terrorism issues and ways to improve the homeland security of rural communities. Bio-terrorism is not going to be a separate topic area. The USDA is encouraging individuals or companies to incorporate this concept into one of the existing topic areas. Possible proposals may address:

- Improved methods for detection of animal diseases such as foot and mouth disease.
- Improved methods for detection of toxins or pathogens in food in order to maintain the safety of our food.
- Improved methods for detection of contaminants in water in order to maintain the safety of our water supply.

Proposals dealing with bio-terrorism should be submitted to the appropriate topic area (eg. Food Science and Nutrition if the proposal deals with food safety).

- Improved planning on how to deal with natural or man-made disasters.
- Address possible interruptions in the food and water supplies.
- Improved telecommunication capability to enable communities to obtain vital information even if transportation links were broken and left the community isolated.

Proposals dealing with rural communities should be submitted to the Rural and Community Development topic area.

Detailed information about these new opportunities is available at the USDA's website.

5.0 Conferences & Workshops

Inside the Evaluation Process at the US Department of Agriculture's SBIR Program, Dr. William Goldner, National SBIR Program Manager, Washington D.C. will present. Free. Register on line at: http://sbir.state.mt.us/BRD_SBIR_conf.html

July 1, Bozeman, MT, Grand Tree Inn, 8:00 AM to 9:00 AM.
July 2, Billings, MT, MT State University, College of Business Room 300 North, 8:00 AM to 9:00 AM.

**Montana companies will have the opportunity to arrange for a one-on-one counseling session with Dr. Goldner. If you would like to schedule a time, contact Linda Brander at 406-841-2749.*

Montana SBIR Workshop, Understanding & Protecting Your Intellectual Property Rights and Licensing Your Technology

July 11, 2002, Ruby's Reserve Street Inn, Missoula, 1:00 PM to 4:30 PM, MT. Dr. Robert Hunter, Hawaii, multiple SBIR award winner and patent agent will be the presenter. Free. Register online http://sbir.state.mt.us/BRD_SBIR_conf.html

4th Annual National Institute of Health SBIR Conference, June 21, 2002, Natcher Conference Center, Bethesda, Maryland. Free: Registration mandatory. For complete conference agenda and online registration, go to: http://web.ncifcrf.gov/fcrdc/conf/sbir

SBIR Phase I Proposal Writing Workshop, Jim & Gail Greenwood, nationally renowned SBIR consultants will be the presenters. Free. Must pre-register and space is limited. Register online at: http://sbir.state.mt.us/BRD_SBIR_conf.html

July 23, Billings, MT, Northern Hotel, 9:00 AM to 4:30 PM.
October 16, Missoula, MT, The Inn on Broadway, 9:00 AM to 4:30 PM.

SBIR Phase II Proposal Workshop, Missoula, MT, Jim and Gail Greenwood will be the presenters. Free. Must pre-register. Register online at:
http://sbir.state.mt.us/BRD_SBIR_conf.html

October 17, Missoula, MT, The Inn on Broadway, 9:00 AM to 4:30 PM.

6.0 Resources

Novelty Searches

- To conduct a novelty [patent] search of U.S. patents.
- Delphion, a fee-based site allows the subscriber to search for foreign patents.

Non-Patent Literature Searches

- Robert Hunter's Site has many useful tips and techniques to assist with patent and non-patent literature searches.
- Publist's site can help identify publications in the inventor's field of interest.
- Infotrieve's web site can assist with the location of articles related to your idea.
- Forbes web site can help identify and locate information about technology, product, and market information related to the individual's innovative idea.
- Google one of the many Internet search engines can be used to gather general information about the inventor's idea, industry, and competitors.

Patent Professionals

In the U.S. it is not necessary for an inventor to be represented by a patent professional. However, a patent agent or a patent attorney registered to practice before a patent office can provide invaluable assistance to an inventor or business seeking to evaluate and protect new technologies. Selecting an appropriate professional with which to work can

be an important step in maximizing the value of an innovation. Links to lists of registered patent agents and patent attorneys by geographical region.

General Resources

- Patent It Yourself by David Pressman is a good book for inventors who have simple inventions.
- The US Department of Energy has published two useful publications, From Invention to Innovation (order number, DOE/GO-10099-810) and Making the Licensing Decision (order number DOE/GO-10098-667). To order your copies call 1-800-862-2086 or use the Internet Clearinghouse.